Utility Interconnection Equipment Certification

The information on this form is provided to indicate the compliance of the generation equipment listed below with the utility interconnection certification requirements defined in California PUC Electric Rule 21

Certifying Laboratory *The information on this form is provided by the following Nationally Recognized Test Laboratory*

Laboratory: Intertek Testing Labs.

Contact Name: Steven Pasternack Phone: 607-758-6267

E-mail: steven.pasternack@intertek.com

Address: Intertek Testing Labs, 3933 US Rt 11

City: Cortland State: NY Zip: 13045

Accredited by: _____ Date: _____

Accredited to (test standards)[i]: Safety for Inverters, Converters, and Controllers for Use in Independent Power Systems, UL 1741 (First Edition, Dated May 7, 1999 including revisions up to November 7th, 2005)

Equipment Specification *The information on this form applies to the following equipment*

Equipment Manufacturer: ABB Inc.

Address: 16520 W Glendale Drive

City: New Berlin State: WI Zip: 53151

Model Number(s): FCE SUB300

Software Version(s): 1] MIXG800H.X01 (Master Control Board),
2] SXAG800C.X01 (Slave Control Board)
Effective[ii]: Oct. (10/25/06)

Device Description[iii]: FCE SUB300 is forced air-cooled Power Conditioning Unit (PCU) that receives DC Input power externally from Fuel Cell and it converts into three phase power for stand-alone or utility interactive operations. It is intended to be permanently installed in an unclassified, indoor/outdoor location. The unit is self protected from over current and over/under voltage or frequency conditions and sensing of grid voltage loss is also part of the system.

Test Results[iv]

Mark the box next to each requirement that has been met and each test that has been performed and successfully passed. Provide an explanation of any exceptions or omissions on a separate sheet. List additional test documents used on a separate sheet

UL 1741: (Section number listed)

☑-39 (Passed on 01/17/01) ☑-40.1 ☑-41.2 ☑-44 ☑-45.2.2 ☑-45.4
☑-45.5 ☑-46.2 ☑-46.2.3 ☑-46.4 ☑-47.3 ☐-47.7 **N/A**
Optional: ☑-*46.3*

☑-IEEE/ANSI C62.45/C62.41 (location Category B)

California Rule 21: ☐-J.3.e Non-export ☑-J.3.f In-Rush Current
☑-J.3.h Synchronization

Device Rating:[v] 323 KW (Gross), 300 KW (Net), 380-480VAC, 50/60Hz, Three Phase

Maximum available fault current, A 125% of Imax.

In-rush current[vi], A N/A

Trip settings (Magnitude/Timing)[vii]: (See test report for verification setting)

	Factory Voltage Setting	Factory Timing Setting 2
Fast Over Voltage	120% of Vnom. 334.2 VAC	160 msec
Slow Over Voltage	110% of Vnom. 304.7 VAC	500 msec
Fast Under Voltage	60% of Vnom. 166.2 VAC	160 msec
Slow Under Voltage	90% of Vnom. VAC 249.3VAC	500 msec
Over Frequency	60.5Hz	160 msec
Under Frequency	57 Hz	160 msec
Slow Under Frequency	59.3 Hz	160 msec.

Nominal Power Factor (Range, if adjustable) ± 0.85 Min., Unity (Nominal)

Non Islanding: Yes ✓ No _ Maximum trip time: 1.95sec, Min Trip time: 0.85sec

(Note: This test was done according UL1741, 01/17/01 version)

Non Export: Yes ___ No ✓ Method: _____

Other[viii]: _____

_____

_____

_____

[i] Accreditation must apply to test standards listed herein.

[ii] Note here the date of certification, applicable serial number (range or first in series), or other information that indicates to which units the certification applies.

[iii] List appropriate functions, capabilities, applications, limitations, etc. Use additional sheets as necessary.

[iv] List all test documents (i.e. UL 1741, IEEE C62.45) and specific procedures (i.e. UL 1741 Sec 39.1 – 39.5, etc.) used to evaluate device's suitability for utility interconnection

[v] kW, kVA, V, A, etc., as appropriate.

[vi] For devices that use grid power to motor to speed.

[vii] Enter trip magnitude, Voltage in volts or frequency in Hz, and trip timing, in cycles into each square (Magnitude/Timing). Devices with adjustable settings shall provide test results over the range of settings. For each test setting provide the setting values in the upper box and measured results in the lower box. List device ranges, if adjustable. Show data for one phase (greatest % difference between setting and measured magnitudes as well as the maximum trip time for that setting). Provide data for all phases (on additional sheets) if measured trip values for any two phases differ by more than 3% (for the same setting).

[viii] Provide any additional information that may be useful in evaluating these results such as test configurations, device settings used to meet requirements, etc. Use additional sheets if necessary.